Pest Management Regulatory Agency
Agence de réglementation de la lutte antiparasitaire

# Proposed Maximum Residue Limit

PMRL2006-01

# Transitioning the Legal Establishment of Maximum Residue Limits (MRLs) for Pesticides from the Food and Drugs Act to the Pest Control Products Act: Consultation on Proposed MRLs

*(publié aussi en français)*

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## Background

When pesticides (i.e., pest control products) are used on crops, when livestock is fed crops treated with pesticides or when livestock is treated directly with pesticides, residues may remain in/on the food. Health Canada's Pest Management Regulatory Agency (PMRA) is responsible for determining that the consumption of the residues that are likely to remain in/on food will not pose an unacceptable health risk. This amount, referred to as a maximum residue limit (MRL), is then established in law for purposes of the adulteration provisions of the *Food and Drugs Act* (FDA). More information on the PMRA's MRL determination process can be found in Appendix I of this document.

Currently, MRLs are legally established under the Food and Drug Regulations (FDR) after consultation through the *Canada Gazette*. Amendments to the FDA (Bill C-28), anticipated to come into force in early 2007, will allow pesticide MRLs to be legally established under the *Pest Control Products Act* (PCPA)[1] without their having to be adopted by regulation under the FDA. Also, the MRLs established in Table II (Division 15) of the FDR will be removed from those regulations and brought under the PCPA by being deemed to have been specified under the PCPA.

Once Bill C-28 is in force, consultations on proposed MRLs for pesticides will continue, but proposed MRLs will no longer be published in the *Canada Gazette*. This will result in a more efficient means of establishing, revising and revoking pesticide MRLs. Although the process by which pesticide MRLs are established in law will change, the scientific basis on which MRLs are determined will remain the same.

## Objectives

The objective of this document is to consult on those MRLs that have been proposed by the PMRA prior to the PCPA coming into force on 28 June 2006 but have not yet been prepublished for comment in the *Canada Gazette*, Part I (refer to Section 1.0 and 2.0 of this document for a listing of these MRLs). Consultation is being initiated in advance of Bill C-28 coming into force so that the MRLs listed in this document can be legally established as soon as possible after the FDA is amended.

MRLs that were proposed prior to the PCPA coming into force and have already been prepublished for comment in the *Canada Gazette*, Part I will not be consulted on further. These MRLs will be established in law after the FDA amendments are in effect.

Proposed MRLs developed after the PCPA came into force will be consulted on in the near future.

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[1] The new *Pest Control Products Act* came into force on 28 June 2006.

## Other Information

As is current practice, the PMRA will continue to post proposed and recently established MRLs on its MRL webpage. In addition, in anticipation of the FDA amendments coming into force, the PMRA is currently completing the development of new MRL information for posting on their website to reflect the new process. Included in this information will be a listing of all legally established pesticide MRLs in Canada (including all existing MRLs in Table II, Division 15, FDR), which will replace the current listing of established pesticide MRLs now being maintained in Table II.

## Parallel Initiatives

Currently, the FDA prohibits the sale of food containing a pesticide residue that exceeds the relevant MRL in Table II. In the absence of a relevant MRL, the residue must not exceed 0.1 ppm, which is commonly known as the General Maximum Residue Limit.

The PMRA recently published Discussion Document DIS2006-01 that proposes the General MRL of 0.1 ppm be revoked. Although the PMRA began to establish specific MRLs for pesticide/food combinations at or below this default value a number of years ago, the revocation of the General MRL will complete the move to setting specific MRLs for all such combinations. A number of the pesticide/food combinations identified in this Proposed Maximum Residue Limit document are also found in the tables linked to the revocation proposal. However, because specific MRL values for these combinations are being proposed herein, these combinations are no longer subject to the revocation policy.

The PMRA also published the results of an effort under the North American Free Trade Agreement (NAFTA) to establish MRLs using a new statistically based (and scientifically defensible) methodology in Regulatory Proposal PRO2005-04, *Guidance for Setting Pesticide Maximum Residue Limits Based on Field Trial Data*. This methodology has been in use by the PMRA since 2005. Although many of the proposed MRLs in this consultation document were determined before the implementation of this new statistical methodology for calculating MRLs, these MRLs remain protective of human health.

In light of the current international environment of increased harmonization, reducing potential trade irritants while continuing to protect food safety is an important factor taken into consideration by the PMRA when specifying MRLs. This effort to harmonize MRLs whenever appropriate will result in greater consistency between Canada and its trading partners. Furthermore, the PMRA is actively working to formalize the crop descriptors used in association with MRLs (i.e., crop groupings) to further minimize trade irritants with Canada's trading partners.

## Consultation

The PMRA will accept written comments on the MRLs proposed in this document up to 60 days from the date of publication of this document. Please forward all comments to Publications. If more information is required on the scientific assessment supporting a particular MRL proposed in this document, please forward written requests to Publications (please see contact information on the cover page of this document).

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## 1.0 Additional MRLs for Chemicals Currently Listed in Table II (Division 15) of the Food and Drug Regulations

### 1.1 Azoxystrobin

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Azoxystrobin | (*αE*)-methyl 2-[[6-(2-cyanophenoxy) -4-pyrimidinyl]oxy]-α-(methoxymethylene) benzeneacetate, including the isomer (*Z*)-methyl 2-[[6-(2-cyanophenoxy)-4-pyrimidinyl]oxy]-(methoxymethylene) benzeneacetate | 27 | New Zealand spinach, spinach, vine spinach |
| | | 17 | Amaranth, arugula, cardoon, celery, celtuce, Chinese celery, corn salad, dandelion leaves, dock, edible leaved chrysanthemums, endives, fresh chervil leaves, fresh Florence fennel leaves and stalk, garden cress, garden purslane, garland chrysanthemums, head lettuce, leaf lettuce, orach leaves, parsley leaves, radicchio, rhubarb, Swiss chard, upland cress, winter purslane |
| | | 7 | Green onions |
| | | 4 | Rice |
| | | 3.3 | Orange oil |
| | | 1.6 | Edible-podded peas |
| | | 1.2 | Bananas[1] |
| | | 0.8 | Calamondins, citrus citrons, citrus hybrids, grapefruits, kumquats, lemons, limes, oranges, pummelos, satsuma mandarins, tangerines |
| | | 0.7 | Dry bulb onions |
| | | 0.55 | Pistachios |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.5 | Balsam apples, balsam pears, black salsify roots, cantaloupes, carrot roots, celeriac roots, chayote fruit, chicory roots, Chinese cucumbers, Chinese waxgourds, citron melons, cucumbers, edible burdock roots, edible gourds (other than those listed in this item), garden beet roots, ginseng roots, horseradish roots, muskmelons (other than those listed in this item), oriental radish roots, parsnip roots, pumpkins, radish roots, rutabaga roots, salsify roots, skirret roots, Spanish salsify roots, summer squash, turnip-rooted chervil roots, turnip-rooted parsley roots, turnip roots, watermelons, West Indian gherkins, winter squash |
| | | 0.45 | Peanut oil[2] |
| | | 0.35 | Dry soybeans |
| | | 0.3 | Sugar beets |
| | | 0.2 | Corn oil, dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry tepary beans, dry urd beans, grain lupin, mung bean sprouts |
| | | 0.15 | Peanuts[3] |
| | | 0.04 | Asparagus |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.03 | Field corn, potatoes, sweet corn kernel plus cob with husks removed |
| | | 0.02 | Almonds, beechnuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapins, filberts, hickory nuts, macadamia nuts, pecans[4], walnuts |
| | | 0.01 | Eggs; fat, liver and meat of poultry |
| | | 0.006 | Milk |

1 Existing MRL for bananas amended from 1 ppm to 1.2 ppm
2 Existing MRL for peanut oil amended from 0.03 ppm to 0.45 ppm
3 Existing MRL for peanuts amended from 0.01 ppm to 0.15 ppm
4 Existing MRL for pecans amended from 0.01 ppm to 0.02 ppm

### 1.2 Chlorothalonil

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Chlorothalonil | tetrachloro-isophthalonitrile, including the metabolite 4-hydroxy-2,5,6-trichloro-1,3-benzenedicarbonitrile | 0.1 | Asparagus |

### 1.3 Clomazone

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Clomazone | 2-(2-cholorobenzyl)-4,4-dimethyl-1,2-oxazolidin-3-one | 0.05 | Sweet potato roots |

### 1.4 Clopyralid

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Clopyralid | 3,6-dichloro-2-pyridinecarboxylic acid | 0.1 | Blueberries |

### 1.5 Cyprodinil

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Cyprodinil | 4-cyclopropyl-6-methyl-*N*-phenylpyrimidin-2-amine | 12 | Watercress |
| | | 9 | Mustard greens, turnip tops |
| | | 6.2 | Blackberries, loganberries, raspberries |
| | | 4 | Green onions |
| | | 3.5 | Strawberries |
| | | 2 | Blueberries, currants, elderberries, gooseberries, huckleberries, Juneberries, lingonberries, salal berries |
| | | 1 | Cabbages |
| | | 0.75 | Carrot roots |
| | | 0.6 | Dry bulb onions |
| | | 0.05 | Pistachios |

### 1.6 Difenoconazole

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Difenoconazole | 1-[2-[4-(4-chlorophenoxy)-2-chlorophenyl]-4-methyl-1,3-dioxolan-2-ylmethyl]-1*H*-1,2,4-triazole | 0.01 | Buckwheat, popcorn grain, pearl millet, proso millet, oats, rice, rye, sorghum, teosinte, triticale, wild rice |

### 1.7 Dimethenamid

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Dimethenamid | 2-chloro-*N*-(2,4-dimethyl-3-thienyl)-*N*-(2-methoxy-1-methylethyl)acetamide | 0.02 | Field corn, dry kidney beans, otebo beans, dry soybeans, sweet corn kernel plus cob with husks removed, white beans |

### 1.8 Diquat

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Diquat | 9,10-dihydro-8a,10a-diazonia-phenanthrene ion | 1 | Rapeseed (canola), mustard seed |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.2 | Dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry tepary beans, dry urd beans, grain lupin, mung bean sprouts |
| | | 0.1 | Potatoes |
| | | 0.05 | Dry soybeans, sunflowers |
| | | 0.02 | Apples, apricots, barley, bok choy Chinese cabbage, broccoli, broccoli raab, Brussels sprouts, cabbages, canary seed, carrot roots, cauliflower, Chinese broccoli, Chinese mustard cabbage, collards, crabapples, cucumbers, dry bulb onions, field corn, garden beet roots, grapes, green onions, kale, kohlrabi, loquats, mayhaws, mustard greens, mustard spinach, Napa Chinese cabbage, oats, oriental pears, peaches/nectarines, pears, plumcots, plums, prune plums, quinces, rape greens, rye, sweet cherries, sweet corn kernels plus cob with husks removed, tart cherries, triticale, turnip roots, wheat |

### 1.9 Fenamidone

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Fenamidone | (5*S*)-3,5-dihydro-5-methyl-2-(methylthio)-5-phenyl-3-(phenylamino)-4*H*-imidazol-4-one | 20 | Leaf lettuce |
| | | 15 | Head lettuce |
| | | 2.2 | Tomato paste |
| | | 2 | Tomato puree |
| | | 1.5 | Green onions |
| | | 1 | Grapes, tomatoes |
| | | 0.2 | Dry bulb onions |
| | | 0.15 | Balsam apples, balsam pears, cantaloupes, chayote fruit, Chinese cucumbers, Chinese waxgourds, citron melons, cucumbers, edible gourds (other than those listed in this item), muskmelons (other than those listed in this item), pumpkins, summer squash, watermelons, West Indian gherkins, winter squash |

### 1.10 Fenhexamid

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Fenhexamid | *N*-(2,3-dichloro-4-hydroxyphenyl)-1-methylcyclohexane carboxamide | 0.3 | Ginseng roots |

## 1.11 Fludioxonil

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Fludioxonil | 4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1*H*-pyrrole-3-carbonitrile | 8 | Mustard greens, turnip tops |
| | | 5 | Watercress |
| | | 4.2 | Blackberries, loganberries, raspberries |
| | | 2 | Blueberries, cabbages, currants, elderberries, gooseberries, huckleberries, Juneberries, lingonberries, salal berries |
| | | 0.75 | Carrot roots |
| | | 0.08 | Pistachios |
| | | 0.05 | Eggs; fat, kidney and liver of poultry; flaxseed |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.02 | Allspice, angelica, anise hyssop leaves, anise seeds, anise star, annatto seeds, arracacha, arrowroot, barley, black caraway seeds, black pepper, black salsify roots, black salsify tops, buckwheat, burnet leaves, camomile, caper buds, caraway seeds, cardamom amomum seeds, cardamom seeds, cassava leaves, cassava roots, cassia, catnip, celeriac roots, celeriac tops, celery seeds, chayote roots, chicory roots, chicory tops, Chinese artichokes, Chinese chives, chive leaves, chufa, cinnamon, cloves, common fennel seeds, coriander seeds, culantro, cumin, dill seeds, dried balm leaves, dried basil leaves, dried chervil leaves, dried clary leaves, dried coriander leaves, dried costmary leaves, dried curry leaves, dried dillweed leaves, dried hyssop tops, dried lemongrass leaves, dried parsley leaves, dried rosemary leaves, dried rue leaves, dried sage leaves, dried summer savory leaves, dried sweet bay leaves, dried tansy leaves, dried tarragon leaves, dried thyme leaves, dried winter savory leaves, dried wintergreen leaves, dried woodruff leaves, dried wormwood leaves, dry borage leaves, edible burdock roots, edible burdock tops, edible canna, fenugreek seed, field corn, Florence fennel seed, fresh balm leaves, fresh basil leaves, fresh borage leaves, fresh chervil leaves, fresh clary leaves, fresh coriander leaves, fresh costmary leaves, fresh culantro leaves, fresh curry leaves, fresh dillweed leaves, fresh hyssop tops, fresh |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | | lemongrass leaves, fresh parsley leaves, fresh rosemary leaves, fresh rue leaves, fresh sage leaves, fresh summer savory leaves, fresh sweet bay leaves, fresh tansy leaves, fresh tarragon leaves, fresh thyme leaves, fresh winter savory leaves, fresh wintergreen leaves, fresh woodruff leaves, fresh wormwood leaves, garden beet roots, garden beet tops, garlic, ginger roots, ginseng roots, grains of paradise, great headed garlic, horehound leaves, horseradish roots, Jerusalem artichokes, juniper berry, lavender, leeks, lerens, lovage leaves, lovage seed, mace, marjoram, mustard seed, nasturtium, nutmeg, oats, oriental radish roots, oriental radish tops, parsnip roots, pearl millet, pennyroyal leaves, popcorn grain, poppy seed, potato onions, proso millet, radish roots, radish tops, rakkyo, rice, rutabaga roots, rutabaga tops, rye, saffron, salsify roots, shallots, skirret roots, sorghum, Spanish salsify roots, sugar beet roots, sugar beet tops, sweet corn kernels plus cob with husks removed, sweet potato roots, tanier corm, tanier leaves, taro corm, taro leaves, teosinte, tree onion tops, triticale, true yam tubers, turmeric roots, turnip roots, turnip-rooted chervil roots, turnip-rooted chervil tops, turnip-rooted parsley roots, vanilla, Welsh onion tops, wheat, white pepper, wild rice, yam bean roots |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.01 | Amaranth, arugula, balsam apples, balsam pears, bell peppers, bok choy Chinese cabbage, broccoli, broccoli raab, Brussels sprouts, cantaloupes, cardoon, cauliflower, celery, celtuce, chayote fruit, Chinese broccoli, Chinese celery, Chinese cucumbers, Chinese mustard cabbage, Chinese waxgourds, citron melons, collards, corn salad, cucumbers, dandelion leaves, dock, dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry soybeans, dry tepary beans, dry urd beans, edible gourds (other than those listed in this item), edible leaved chrysanthemum, edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans, eggplants, endives, fresh florence fennel leaves and stocks, garden cress, garden purslane, garden chrysanthemum, grain lupin, groundcherries, head lettuce, kale, kohlrabi, leaf lettuce, meat of poultry, mung bean sprouts, muskmelons (other than those listed in this item), |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | | mustard spinach, Napa Chinese cabbage, New Zealand spinach, non-bell peppers, orach leaves, peanuts, pepinos, pepper hybrids, pumpkins, radicchio, rape greens, rhubarb, spinach, succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas, succulent shelled soybeans, summer squash, Swiss chard, tomatillos, tomatoes, upland cress, vine spinach, watermelons, West Indian gherkins, winter purslane, winter squash |

### 1.12 Imidacloprid

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Imidacloprid | 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-*N*-nitro-1*H*-imidazol-2-amine, including metabolites containing the 6-chloropicolyl moiety | 0.5 | Balsam apples, balsam pears, cantaloupes, chayote fruit, Chinese cucumbers, Chinese waxgourds, citron melons, edible gourds (other than those listed in this item), muskmelons (other than those listed in this item), pumpkins, summer squash, watermelons, West Indian gherkins, winter squash |

## 1.13 Lambda-cyhalothrin

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Lambda-cyhalothrin[1] | [1α(*S**),3α(*Z*)](±)-cyano(3-phenoxyphenyl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclo propane-carboxylate | 0.5 | Canola oil |
| | | 0.3 | Rapeseed (canola) |
| | | 0.1 | Onions |
| | | 0.08 | Cherries |
| | | 0.07 | Apples, peaches/nectarines |
| | | 0.03 | Wheat |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.02 | Dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry soybeans, dry tepary beans, dry urd beans, edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans, grain lupin, mung bean sprouts, succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled green peas, succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas, succulent shelled soybeans |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.01 | Barley, Brussels sprouts, cauliflower, mustard, pears, plums, potatoes, strawberries |

[1] Common chemical name changed from cyhalothrin-lambda to lambda-cyhalothrin.

### 1.14 Metalaxyl

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Metalaxyl | *N*-(2,6-dimethylphenyl)-*N*-(methoxyacetyl)-DL-alanine methyl ester, including metabolites that can be converted to the 2,6-dimethylaniline moiety, each expressed as metalaxyl equivalents | 8 | Hops (dried) |
| | | 0.7 | Kidney of cattle, goats, hogs, horses, sheep and poultry |
| | | 0.3 | Liver of cattle, goats, hogs, horses, sheep and poultry |
| | | 0.1 | Apples, rapeseed (canola), sunflower seeds, mustard seeds. |
| | | 0.05 | Buckwheat; dry chickpeas; dry lentils; eggs; fat, meat and meat by-product (except kidney, liver) of cattle, goat, hogs, horses, sheep and poultry; field corn; oats; pearl millet; popcorn grain; proso millet; rice; rye; sorghum; sweet corn kernels plus cob with husks removed; teosinte; triticale; wild rice |
| | | 0.01 | Milk |

## 1.15 Myclobutanil

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Myclobutanil | α-butyl-α-(4-chlorophenyl)-1*H*-1,2,4-triazole-1-propanenitrile, including the metabolites α-(3-hydroxybutyl)-α-(4-chlorophenyl)-1*H*-1,2,4-trizole-1-propanenitrile and α-(butyl-3-one)-α-(4-chlorophenyl)-1*H*-1,2,4-triazole-1-propanenitrile | 8 | Prune plums |
| | | 3 | Currants |
| | | 2 | Plums |
| | | 1.4 | Apricots |
| | | 1.2 | Blackberries, loganberries, raspberries |
| | | 1 | Tomato paste |
| | | 0.5 | Mayhaws, tomato purée |
| | | 0.3 | Tomatoes |
| | | 0.1 | Almonds |
| | | 0.07 | Saskatoon berries |
| | | 0.02 | Asparagus |

## 1.16 Propamocarb

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Propamocarb hydrochloride | propyl [3-(dimethylamino)propyl]carbamate hydrochloride including the metabolites propyl [3-(dimethylamino)propyl]carbamate N3-oxide, 3-[3-(dimethylamino)propyl]-4-hydroxy-4-methyl-2-oxazolidine, 2-hydroxypropyl [3-(dimethylamino)propyl] carbamate and *N*-ß-D-glucopyranuronosyl-*N*, *N*-dimethyl-3-[(propoxycarbonyl)amino]-1-propanaminium inner salt | 0.35 | Liver of cattle, goats, hogs, horses and sheep |
| | | 0.25 | Fat, meat and meat by-products (except liver) of cattle, goats, hogs, horses and sheep |
| | | 0.05 | Milk |

## 1.17 Propiconazole

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Propiconazole | 1-[[2-(2,4-diclorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1*H*-1,2,4-triazole including all metabolites containing the 2,4-dichlorophenyl-1-methyl substituted moiety | 0.7 | Blackberries, blueberries[1], currants, elderberries, gooseberries, huckleberries, loganberries, raspberries |
| | | 0.05 | Dry adzuki beans, dry beans, dry broad beans, dry kidney beans, dry lablab beans, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pink beans, dry pinto beans, dry rice beans, dry tepary beans, dry urd beans |

[1] Existing MRLs for blueberries and dried blueberries amended from 0.02 ppm and 0.15 ppm, respectively, to 0.7 ppm.

## 1.18 Pyridaben

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Pyridaben | 4-chloro-2-(1,1-dimethyl thyl)-5-[[[4-(1,1-dimethy lethyl) phenyl]methyl]thio]-3(2*H*)- pyridazinone | 1.3 | Sweet cherries, tart cherries |

## 1.19 Pyrimethanil

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Pyrimethanil | 4,6-dimethyl-*N*-phenyl-2-pyridinamine | 150 | Citrus oil |
| | | 10 | Calamondins, citrus citron, citrus hybrids, grapefruits, kumquats, lemons, limes, oranges, pummelos, satsuma mandarins, tangerines |
| | | 3 | Apples, apricots, crabapples, loquats, mayhaws, oriental pears, peaches/nectarines, pears, plumcots, plums, prune plums, quinces |
| | | 2.5 | Strawberries |
| | | 2 | Green onions |
| | | 0.5 | Tomatoes |
| | | 0.1 | Dry bulb onions |
| | | 0.05 | Arracacha, arrowroot, cassava roots, chayote roots, Chinese artichokes, chufa, edible canna, ginger roots, Jerusalem artichokes, lerens, potatoes, sweet potato roots, tanier corm, taro corm, true yam tuber, turmeric roots, yam bean roots |
| | 4,6-dimethyl-*N*-phenyl-2-pyridinamine, including the metabolite phenol, 4-[(4,6-dimethyl-2-pyrimidinyl)amino] | 0.15 | Meat by-products (except liver) of cattle, goats, hogs, horses and sheep |
| | | 0.1 | Fat, liver and meat of cattle, goats, hogs, horses and sheep |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | 4,6-dimethyl-*N*-phenyl-2-pyridinamine, including the metabolite 5-pyrimidinol,4,6-dimethyl-2-(phenylamino) | 0.02 | Milk |

## 1.20 Quizalofop-ethyl

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Quizalofop-ethyl | ethyl (*RS*) 2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propionate, including the acid metabolites of (*RS*)2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propanoic acid, all expressed as quizalofop-ethyl | 0.15 | Dry adzuki beans, dry beans, dry broad beans, dry kidney beans, dry lablab beans, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pink beans, dry pinto beans, dry rice beans, dry tepary beans, dry urd beans |
| | | 0.1 | Rutabaga roots |
| | | 0.05 | Dry chickpeas, edible-podded jackbeans, edible-podded moth beans, edible-podded runner beans, edible-podded snap beans, edible-podded soybeans, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans |

## 1.21 S-Metolachlor

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| S-metolachlor | 2-chloro-*N*-(2-ethyl-6-methylphenyl)-*N*-[(1*S*)-2-methoxy-1-methylethyl)acetamide and 2-chloro-*N*-(2-ethyl-6-methylphenyl)-*N*-[(1*R*)-2-methoxy-1-methylethyl)acetamide, including the metabolites 2-[(2-ethyl-6-methylphenyl) amino]-1-propanol and 4-(2-ethyl-6-methylphenyl)-2-hydroxy-5-methyl-3-morpholinone | 0.08 | Bell peppers |

## 1.22 Spinosad

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Spinosad | (2*R*,3a*S*,5a*R*,5b*S*,9*S*,13*S*,14*R*,16a*S*,16b*R*)-2-(6-deoxy-2,3,4-tri-*O*-methyl-α-L-mannopyranosyloxy)-13-[[(2*R*,5*S*,6*R*)-5-(dimethylamino)-tetrahydro-6-methyl-2*H*-pyran-2yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-14-methyl-1*H*-as-indaceno[3,2-*d*]oxacyclododecin-7,15-dione and (2*S*,3a*R*,5a*R*,5b*S*,9*S*,13*S*,14*R*,16a*S*,16b*R*)-2-(6-deoxy-2,3,4-tri-*O*-methyl-α-L-mannopyranosyloxy)-13-[[(2*R*,5S,6*R*)-5-(dimethylamino)-tetrahydro-6-methyl-2*H*-pyran-2yl]oxy]-9-ethyl-2,3,3a,5a,5b,6,9,10,11,12,13,14,16a,16b-tetradecahydro-4,14-dimethyl-1*H*-as-indaceno[3,2-*d*]oxacyclododecin-7,15-dione | 17 | Milk fat |
| | | 7 | Amaranth, arugula, bok choy Chinese cabbage, broccoli raab, cardoon, celery, celtuce, Chinese celery, collards, corn salad, dandelion leaves, dock, edible leaved chrysanthemum, endives, fresh chervil leaves, fresh Florence fennel leaves and stalks, garden cress, garden purslane, garland chrysanthemum, head lettuce, kale, leaf lettuce, mustard greens, mustard spinach, New Zealand spinach, orach leaves, parsley leaves, radicchio, rape greens, rhubarb, spinach, Swiss chard, upland cress, vine spinach, winter purslane |
| | | 5 | Fat of cattle, goats, hogs, horses and sheep |
| | | 3 | Citrus oil |
| | | 2 | Broccoli, Brussels sprouts, cabbage, cauliflower, Chinese broccoli, Chinese mustard cabbage, kohlrabi, Napa Chinese cabbage |
| | | 1.5 | Barley, buckwheat, field corn, oats, pearl millet, popcorn grain, proso millet, rice, rye, sorghum, sweet corn kernels plus cob with husks removed, teosinte, triticale, wheat, wild rice |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 1 | Grape juice; meat by-products of cattle, goats, hogs, horses and sheep |
| | | 0.7 | Raisins, strawberries |
| | | 0.5 | Blackberries, blueberries, currants, elderberries, gooseberries, huckleberries, loganberries, milk, raspberries |
| | | 0.4 | Grapes |
| | | 0.3 | Balsam apples, balsam pears, calamondins, cantaloupes, chayote fruit, Chinese cucumbers, Chinese waxgourds, citron melons, citrus citron, citrus hybrids, cucumbers, edible gourds (other than those listed in this item), edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans, grapefruits, kumquats, lemons, limes, muskmelons (other than those listed in this item), oranges, pummelos, pumpkins, satsuma mandarins, summer squash, tangerines, watermelons, West Indian gherkins, winter squash |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.2 | Apricots; bell peppers; chokecherries; eggplants; globe artichokes; groundcherries; meat of cattle, goats, hogs, horses and sheep; non-bell peppers; peaches/nectarines; pepinos; pepper hybrids; plumcots; plums; prune plums; sweet cherries; tart cherries; tomatillos; tomatoes |
| | | 0.1 | Black salsify roots, carrot roots, celeriac roots, chicory roots, crabapples, edible burdock roots, garden beet roots, ginseng roots, horseradish roots, loquats, mayhaws, oriental pears, oriental radish roots, parsnip roots, pears, quinces, radish roots, rutabaga roots, salsify roots, skirret roots, Spanish salsify roots, sugar beet roots, turnip-rooted chervil roots, turnip-rooted parsley roots, turnip roots |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.02 | Arracacha, arrowroot, cassava roots, chayote roots, Chinese artichokes, chufa, dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry soybeans, dry tepary beans, dry urd beans, edible canna, ginger roots, grain lupin, Jerusalem artichokes, lerens, mung bean sprouts, succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled green peas, succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas, sweet potato roots, tanier corms, taro corms, true yam tubers, turmeric roots, yam bean roots |
| | | 0.01 | Cranberries |

## 1.23 Thiabendazole

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Thiabendazole | 2-(4-thiazolyl) benzimidazole | 10 | Potatoes[1] |

[1] Existing MRL for potatoes amended from 4 ppm to 10 ppm

## 1.24 Thiamethoxam

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Thiamethoxam | 3-[(2-chloro-5-thiazolyl)methyl] tetrahydro-5-methyl-N-nitro-4H-1,3,5-oxadiazin-4-imine including the metabolite (E)-N-[(2-chloro-5-thiazolyl)methyl]-N'-methyl-N"-nitro-guanidine | 0.02 | Barley, buckwheat, dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry soybeans, dry tepary beans, dry urd beans, edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans, field corn, flaxseed, grain lupin, Indian mustard seed, Indian rapeseed, mung bean sprouts, mustard seed, oats, pearl millet, popcorn grain, proso millet, rapeseed (canola), rice, rye, safflower, sorghum, succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled green peas, |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | | succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas, succulent shelled soybeans, sunflower seeds, sweet corn kernels plus cob with husks removed, teosinte, triticale, wheat, wild rice |

## 2.0 MRLs for Chemicals Not Currently Listed in Table II (Division 15) of the Food and Drug Regulations

### 2.1 Aminopyralid

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Aminopyralid | 4-amino-3,6-dichloro-2-pyridinecarboxylic acid | 0.3 | Kidney of cattle, goats, horses and sheep |
| | | 0.03 | Milk |
| | | 0.02 | Meat and meat by-products (except kidney) of cattle, goats, horses and sheep |
| | 4-amino-3,6-dichloro-2-pyridinecarboxylic acid (free and conjugated) | 0.1 | Wheat bran |
| | | 0.04 | Wheat |

## 2.2 Bifenazate

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Bifenazate | 1-methylethyl 2-(4-methoxy[1,1'-biphenyl]-3-yl)hydrazinecarboxylate, including the metabolite diazenecarboxylic acid, 2-(4-methoxy-[1,1'-biphenyl]-3-yl), 1-methylethyl ester | 1.2 | Raisins |
| | | 1.1 | Bell peppers |
| | | 1 | Grapes |
| | | 0.6 | Apples |
| | | 0.35 | Tomatoes |
| | | 0.25 | Cucumbers |
| | | 0.01 | Fat of cattle, goats, hogs, horses and sheep |
| | 1-methylethyl 2-(4-methoxy[1,1'-biphenyl]-3-yl)hydrazinecarboxylate, including the metabolites [diazenecarboxylic acid, 2-(4-methoxy-[1,1'-biphenyl]-3-yl), 1-methylethyl ester], [1,1'-biphenyl]-4-ol and [1,1'-biphenyl]-4-ol sulfate | 0.02 | Meat and meat byproducts of cattle, goats, hogs, horses and sheep; milk |

## 2.3 Boscalid

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Boscalid | 2-chloro-*N*-(4'-chloro[1,1'-biphenyl]-2-yl)-3-pyridinecarboxamide | 30 | Peppermint tops, spearmint tops |
| | | 18 | Bok choy Chinese cabbage, broccoli raab, collards, kale, mustard greens, mustard spinach, rape greens |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 11 | Leaf lettuce |
| | | 8.5 | Raisins |
| | | 6.5 | Head lettuce |
| | | 5 | Canola oil |
| | | 3.5 | Blackberries, blueberries, currants, elderberries, flaxseed, gooseberries, grapes, huckleberries, loganberries, mustard seed, rapeseed (canola), raspberries |
| | | 3 | Broccoli, Brussels sprouts, cabbage, cauliflower, Chinese broccoli, Chinese mustard cabbage, dry bulb onions, garlic, great-headed garlic, green onions, kohlrabi, leeks, Napa Chinese cabbage, potato onions, rakkyo, shallots, tree onion tops, Welsh onion tops |
| | | 2.5 | Dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry tepary beans, dry urd beans, grain lupin, mung bean sprouts |
| | | 1.7 | Apricots, peaches/nectarines, plumcots, plums, prune plums, sweet cherries, tart cherries |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 1.6 | Edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans |
| | | 1.5 | Balsam apples, balsam pears, cantaloupes, chayote fruit, Chinese waxgourds, citron melons, edible gourds (other than those listed in this item), muskmelons (other than those listed in this item), pumpkins, summer squash, watermelons, West Indian gherkins, winter squash |
| | | 1.2 | Strawberries |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 1 | Amaranth, arugula, bell peppers, black salsify tops, cardoon, cassava leaves, celeriac tops, celery, celtuce, chicory tops, Chinese celery, corn salad, dandelion leaves, dock, edible burdock tops, edible leaved chrysanthemum, eggplants, endives, fresh chervil leaves, fresh Florence fennel leaves and stalk, garden beet roots, garden beet tops, garden cress, garden purslane, garland chrysanthemum, groundcherries, New Zealand spinach, non-bell peppers, orach leaves, oriental radish tops, parsley leaves, parsnip tops, pepinos, pepper hybrids, radicchio, radish roots, radish tops, rhubarb, rutabaga tops, spinach, sugar beet roots, sugar beet tops, Swiss chard, tanier leaves, taro leaves, tomatillos, tomatoes, turnip roots, turnip tops, turnip-rooted chervil tops, upland cress, vine spinach, winter purslane |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.7 | Almonds, beechnuts, black salsify roots, Brazil nuts, butternuts, carrot roots, cashews, celeriac roots, chestnuts, chicory roots, chinquapins, edible burdock roots, filberts, ginseng roots, hickory nuts, horseradish roots, macadamia nuts, oriental radish roots, parsnip roots, pecans, pistachios, rutabaga roots, salsify roots, skirret roots, Spanish salsify roots, turnip-rooted chervil roots, turnip-rooted parsley roots, walnuts |
| | | 0.6 | Safflower seeds, succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled green peas, succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas, sunflower seeds |
| | | 0.2 | Barley, buckwheat, Chinese cucumbers, cucumbers, field corn, oats, pearl millet, popcorn grain, proso millet, rice, rye, sorghum, sweet corn kernel plus cob with husks removed, teosinte, triticale, wheat, wild rice |
| | | 0.15 | Peanut oil |
| | | 0.1 | Dry soybeans |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.05 | Arracacha, arrowroot, cassava roots, chayote roots, Chinese artichokes, chufa, cottonseed oil, edible canna, ginger roots, Jerusalem artichokes, lerens, peanuts, potatoes, sweet potato roots, tanier corm, taro corm, true yam tuber, turmeric roots, yam bean roots |
| | 2-chloro-*N*-(4'-chloro[1,1'-biphenyl]-2-yl)-3-pyridinecarboxamide, including the metabolites 2-chloro-*N*-(4'-chloro-5-hydroxy-[1,1'-biphenyl]-2-yl)-3-pyridinecarboxamide and the glucuronic acid conjugate of 2-chloro-*N*-(4'-chloro-5-hydroxy-biphenyl-2-yl)nicotinamide | 0.35 | Meat by-products of cattle, goats, hogs, horses and sheep |
| | | 0.3 | Fat of cattle, goats, hogs, horses and sheep |
| | | 0.1 | Meat of cattle, goats, hogs, horses and sheep; meat by-products of poultry, milk |
| | | 0.05 | Fat and meat of poultry |
| | | 0.02 | Eggs |

## 2.4 Chloropicrin

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Chloropicrin | Trichloronitromethane | 0.01 | Strawberries |
| | | 0.025 | Amaranth, apples, apricots, arracacha, arrowroot, arugula, asparagus, balsam apples, balsam pears, bell peppers, black salsify roots, blackberries, blueberries, bok choy Chinese cabbage, broccoli, broccoli raab, Brussels sprouts, cabbage, cantaloupes, cardoon, carrot roots, cassava roots, cauliflower, celeriac roots, celery, celtuce, chayote fruit, chayote roots, chicory roots, Chinese artichokes, Chinese broccoli, Chinese celery, Chinese cucumbers, Chinese mustard cabbage, Chinese waxgourds, chufa, citron melons, collards, corn salad, crabapples, cucumbers, currants, dandelion leaves, dock, dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry bulb onions, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry soybeans, dry tepary beans, dry urd beans, edible burdock roots, edible canna, edible gourds (other than those listed in this item), edible leaved chrysanthemum, edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans, eggplants, elderberries, endives, fresh chervil leaves, fresh Florence fennel leaves and stalk, garden beet roots, garden cress, garden purslane, garland chrysanthemum, garlic, |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | | ginger roots, ginseng roots, gooseberries, grain lupin, great headed garlic, green onions, groundcherries, head lettuce, horseradish roots, huckleberries, Jerusalem artichokes, kale, kohlrabi, leaf lettuce, leeks, lerens, loganberries, loquats, mayhaws, mung bean sprouts, muskmelons (other than those listed in this item), mustard greens, mustard spinach, Napa Chinese cabbage, New Zealand spinach, non-bell peppers, orach leaves, oriental pears, oriental radish roots, parsley leaves, parsnip roots, peaches/nectarines, pears, pepinos, pepper hybrids, plumcots, plums, potato onions, potatoes, prune plums, pumpkins, quinces, radicchio, radish roots, rakkyo, rape greens, raspberries, rhubarb, rutabaga roots, salsify roots, shallots, skirret roots, Spanish salsify roots, spinach, succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled green peas, succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas, succulent shelled soybeans, sugar beet roots, summer squash, sweet cherries, sweet potato roots, Swiss chard, tanier corm, taro corm, tart cherries, tomatillos, tomatoes, tree onion tops, true yam tubers, turmeric roots, turnip roots, turnip-rooted chervil roots, turnip-rooted parsley roots, upland cress, vine spinach, watermelons, Welsh onion tops, West Indian gherkins, winter purslane, winter squash, yam bean roots |

## 2.5 Cloquintocet-mexyl

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Cloquintocet-mexyl | 1-methylhexyl[(5-chloro-8-quinolinyl)oxy]acetate, including the metabolite [(5-chloro-8-quinolinyl)oxy]acetic acid | 0.01 | Barley, wheat |

## 2.6 Ethametsulfuron-methyl

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Ethametsulfuron-methyl | methyl 2-[[[[[4-ethoxy-6-(methylamino)-1,3,5-triazin-2-yl]amino] carbonyl]amino]sulfonyl] benzoate | 0.05 | Mustard seed |
| | | 0.02 | Rapeseed (canola), sunflower seeds |

## 2.7 Fluazifop-p-butyl

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Fluazifop-p-butyl | butyl (*R*)-2-[4-[[5-(trifluoromethyl)-2-pyridinyl]oxy]phenoxy] propanoate | 0.03 (calculated as acid) | Grapes |

## 2.8 Flufenacet

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Flufenacet | *N*-(4-fluorophenyl)-*N*-(1-methylethyl)-2-[[5-(trifluoromethyl)-1,3,4-thiadiazol-2-yl]oxy]acetamide | 0.1 | Dry soybeans |
| | | 0.05 | Eggs; field corn; meat and meat by-products of cattle, goats, hogs, horses, poultry and sheep |
| | | 0.01 | Milk |

## 2.9 Pinoxaden

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Pinoxaden | 2,2-dimethyl-propanoic acid 8-(2,6-diethyl-4-methylphenyl)-1,2,4,5-tetrahydro-7-oxo-7*H*-pyrazolo[1,2-*d*][1,4,5]oxadiazepin-9-yl ester, including the metabolites 8-(2,6-diethyl-4-methyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo [1,2-*d*][1,4,5]oxadiazepin-7-one, 8-(2,6-diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-*d*] [1,4,5]oxadiazepin-7-one and 3,5-diethyl-4-(9-hydroxy-7-oxo-1,2,4,5-tetrahydro-7*H*-pyrazolo[1,2-*d*] [1,4,5]oxadiazepin-8-yl)-benzoic acid | 3 | Wheat bran |
| | | 1.6 | Barley bran |
| | | 1.3 | Wheat |
| | | 0.9 | Barley |
| | | 0.06 | Eggs; fat, meat and meat by-products of poultry |
| | | 0.04 | Fat, meat and meat by-products of cattle, goats, hogs, horses and sheep |
| | | 0.02 | Milk |

## 2.10 Prohexadione Calcium

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Prohexadione calcium | calcium 3,5-dioxo-4-(1-oxopropyl) cyclohexanecarboxylate | 3 | Apples |
| | | 0.05 | Fat, meat and meat by-products of cattle, goats, hogs, horses and sheep |
| | | 0.01 | Milk |

## 2.11 Prothioconazole

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Prothioconazole | 2-[2-(1-chlorocyclopropyl)-3-(2-chlorophenyl)-2-hydroxypropyl]-1,2-dihydro-3*H*-1,2,4-triazole-3-thione | 0.9 | Dry chickpeas, dry lentils |
| | | 0.35 | Barley |
| | | 0.2 | Meat by-products of cattle, goats, horses and sheep |
| | | 0.15 | Rapeseed (canola), mustard seed |
| | | 0.1 | Fat of cattle, goats, horses and sheep |
| | | 0.07 | Wheat |
| | | 0.05 | Meat by-products of hogs |
| | | 0.02 | Meat of cattle, goats, horses and sheep; milk; liver of poultry |

## 2.12 Pymetrozine

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Pymetrozine | 4,5-dihydro-6-methyl-4-[(3-pyridinylmethylene) amino]-1,2,4-triazin-3(2*H*)-one | 6 | Hops |
| | | 0.6 | Amaranth, arugula, cardoon, celery, celtuce, Chinese celery, corn salad, dandelion leaves, dock, edible leaved chrysanthemum, endives, fresh chervil leaves, fresh Florence fennel leaves and stalk, garden cress, garden purslane, garland chrysanthemum, head lettuce, leaf lettuce, New Zealand spinach, orach leaves, parsley leaves, radicchio, rhubarb, sea kale, spinach, Swiss chard, upland cress, vine spinach, winter purslane |
| | | 0.5 | Broccoli, Brussels sprouts, cabbage, cauliflower, Chinese broccoli, Chinese mustard cabbage, kohlrabi, Napa Chinese cabbage |
| | | 0.25 | Bok choy Chinese cabbage, broccoli raab, collards, kale, mustard greens, mustard spinach, rape greens |
| | | 0.2 | Bell peppers, eggplants, groundcherries, lemons, mandarins, non-bell peppers, oranges, pepinos, pepper hybrids, tomatillos, tomatoes |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.1 | Balsam apples, balsam pears, cantaloupes, chayote fruit, Chinese cucumbers, Chinese waxgourds, citron melons, cucumbers, edible gourds (other than those listed in this item), muskmelons (other than those listed in this item), pumpkins, summer squash, watermelon, West Indian gherkins, winter squash |
| | | 0.02 | Arracacha, arrowroot, cassava roots, chayote roots, Chinese artichokes, chufa, edible canna, ginger roots, Jerusalem artichokes, lerens, pecans, potatoes, sweet potato roots, tanier corms, taro corms, true yam tuber, turmeric roots, yam bean roots |

## 2.13 Pyraclostrobin

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Pyraclostrobin | methyl [2-[[[1-(4-chlorophenyl)-1*H*-pyrazol-3-yl]oxy]methyl] phenyl] methoxycarbamate, including the metabolite [2-[[[1-(4-chlorophenyl)-1*H*-pyrazol-3-yl]oxy]methyl] phenyl]carbamate | 7 | Raisins |
| | | 4 | Citrus oil |
| | | 2 | Grapes |
| | | 1 | Bell peppers, blackberries, blueberries, currants, eggplants, elderberries, gooseberries, groundcherries, huckleberries, loganberries, non-bell peppers, pepinos, pepper hybrids, raspberries, tomatillos, tomatoes |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.7 | Apricots, calamondins, citrus citron, citrus hybrids, grapefruits, kumquats, lemons, limes, oranges, peaches/nectarines, plumcots, plums, prune plums, pummelos, satsuma mandarins, sweet cherries, tangerines, tart cherries |
| | | 0.65 | Dry bulb onions, garlic, great-headed garlic, green onions, leeks, potato onions, rakkyo, shallots, tree onion tops, Welsh onion tops |
| | | 0.5 | Balsam apples, balsam pears, cantaloupes, chayote fruit, Chinese cucumbers, Chinese waxgourds, citron melons, cucumbers, dry adzuki beans, dry beans, dry black-eyed peas, dry broad beans, dry catjang seed, dry chickpeas, dry field peas, dry guar seed, dry kidney beans, dry lablab beans, dry lentils, dry lima beans, dry moth beans, dry mung beans, dry navy beans, dry pigeon peas, dry pink beans, dry pinto beans, dry rice beans, dry southern peas, dry tepary beans, dry urd beans, grain lupin, mung bean sprouts, edible gourds (other than those listed in this item), muskmelons (other than those listed in this item), pistachios, pumpkins, summer squash, watermelons, West Indian gherkins, winter squash |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.4 | Barley, black salsify roots, carrot roots, celeriac roots, chicory roots, edible burdock roots, edible-podded dwarf peas, edible-podded jackbeans, edible-podded moth beans, edible-podded peas, edible-podded pigeon peas, edible-podded runner beans, edible-podded snap beans, edible-podded snow peas, edible-podded soybeans, edible-podded sugar snap peas, edible-podded swordbeans, edible-podded wax beans, edible-podded yardlong beans, garden beet roots, ginseng roots, horseradish roots, oriental radish roots, parsnip roots, radish roots, rutabaga roots, salsify roots, skirret roots, Spanish salsify roots, strawberries, turnip-rooted chervil roots, turnip-rooted parsley roots, turnip roots |
| | | 0.35 | Succulent shelled black-eyed peas, succulent shelled broad beans, succulent shelled English peas, succulent shelled garden peas, succulent shelled green peas, succulent shelled lima beans, succulent shelled peas, succulent shelled pigeon peas, succulent shelled southern peas |
| | | 0.2 | Wheat |
| | | 0.15 | Sugar beet roots |
| | | 0.1 | Peanut oil |
| | | 0.05 | Peanuts |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | | 0.04 | Almonds, arracacha, arrowroot, bananas, beechnuts, black walnuts, Brazil nuts, butternuts, cashews, cassava roots, chayote roots, chestnuts, chinquapins, Chinese artichokes, chufa, dry soybeans, edible canna, English walnuts, field corn, filberts, ginger roots, hickory nuts, Jerusalem artichokes, lerens, macadamia nuts, pecans, popcorn grain, potatoes, rye, sweet corn kernels plus cob with husks removed, sweet potato roots, tanier corm, taro corm, turmeric roots, true yam tubers, walnuts (other than those listed in this item), yam bean roots |
| | methyl [2-[[[1-(4-chlorophenyl)-1*H*-pyrazol-3-yl]oxy]methyl]phenyl] methoxycarbamate, including the metabolites 1-(4-chlorophenyl)-1*H*-pyrazol-3-ol and 1-(4-chloro-2-hydroxyphenyl)-1*H*-pyrazol-3-ol | 1.5 | Liver of cattle, goats, hogs, horses and sheep |
| | | 0.2 | Meat by-products (except liver) of cattle, goats, hogs, horses and sheep |
| | | 0.1 | Fat and meat of cattle, goats, hogs, horses and sheep; milk |

## 2.14 Quinoxyfen

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Quinoxyfen | 5,7-dichloro-4-(4-fluorophenoxy)quinoline | 2.5 | Hops |
| | | 0.5 | Grapes |
| | | 0.3 | Cherries |

## 2.15 Spirodiclofen

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Spirodiclofen | 3-(2,4- dichlorophenyl)-2-oxo-1-oxaspiro [4.5]dec-3-en-4-yl 2,2-dimethylbutanoate | 20 | Citrus oil |
| | | 4 | Raisins |
| | | 2.4 | Grape juice |
| | | 2 | Grapes |
| | | 1 | Apricots, peaches/nectarines, plumcots, plums, prune plums, sweet cherries, tart cherries |
| | | 0.8 | Apples, crabapples, loquats, mayhaws, oriental pears, pears, quinces |
| | | 0.6 | Citrus juice |
| | | 0.5 | Calamondins, citrus citron, citrus hybrids, grapefruits, kumquats, lemons, limes, oranges, pummelos, satsuma mandarins, tangerines |
| | | 0.1 | Almonds, beechnuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapins, filberts, hickory nuts, macadamia nuts, pecans, pistachios, walnuts |

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| | 3-(2,4- dichlorophenyl)-2-oxo-1-oxaspiro [4.5]dec-3-en-4-yl 2,2-dimethylbutanoate including its metabolite 1-oxaspiro[4.5] dec-3-en-2-one, 3-(2,4-dichlorophenyl)-4-hydroxy-(9CI) | 0.1 | Meat by-products of cattle, goats, horses and sheep |
| | | 0.03 | Milk fat |
| | | 0.02 | Fat and meat of cattle, goats, horses and sheep |
| | | 0.01 | Milk |

## 2.16 Sulfuryl fluoride

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Sulfuryl fluoride | sulfuryl fluoride | 3 | Pecans |
| | | 2 | Walnuts |
| | | 0.3 | Pistachios |
| | | 0.1 | Wheat |
| | | 0.05 | Figs |
| | | 0.03 | Field corn, prune plums, rice |
| | | 0.01 | Almonds, dates |

## 2.17 Trifloxystrobin

| Common Chemical Name | Chemical Name of Substance | Maximum Residue Limit (ppm) | Foods |
|---|---|---|---|
| Trifloxystrobin | methyl (α,*E*)-α-(methoxyimino)-2-[[[(*E*)-[1-[3-(trifluoromethyl) phenyl]ethylidene] amino]oxy]methyl] benzeneacetate, including the metabolite (α,*E*)-α-(methoxyimino)-2-[[[(*E*)-[1-[3-(trifluoromethyl) phenyl]ethylidene] amino]oxy]methyl] benzene acetic acid, expressed as trifloxystrobin | 5 | Raisins |
| | | 2 | Grapes |
| | | 0.5 | Apples, balsam apples, balsam pears, bell peppers, cantaloupes, chayote fruit, Chinese cucumbers, Chinese waxgourds, citron melons, crabapples, cucumbers, edible gourds (other than those listed in this item), eggplants, groundcherries, loquats, mayhaws, muskmelons (other than those listed in this item), non-bell peppers, oriental pears, pears, pepinos, pepper hybrids, pumpkins, quinces, summer squash, tomatillos, tomatoes, watermelons, West Indian gherkins, winter squash |
| | | 0.1 | Sugar beet roots |
| | | 0.05 | Barley, oats, wheat |
| | | 0.04 | Almonds; eggs; fat, meat and meat by-products of cattle, goats, hogs, horses, poultry and sheep; potatoes |
| | | 0.02 | Milk |

# Appendix I The PMRA's Maximum Residue Limit (MRL) Determination Process

## What is an MRL?

An MRL is the maximum pesticide residue legally allowed in/on a food at the time of sale. An MRL is specified on the basis of data as to the residue that would be left in/on the food at harvest if the product is used according to its label directions. However, the legal significance of the MRL arises at the time of sale. In addition to the pesticide, the residue includes any metabolites, derivatives or related compounds that may contribute to toxic effects in humans. An MRL is set only after the PMRA has confirmed that the level of pesticide residues that would likely be consumed when the food is eaten will not pose an unacceptable risk.

## How is an MRL used?

MRLs are the legal limits that are imposed to ensure that commodities that move in trade, both imported and grown domestically, comply to an acceptable residue level and that this level is protective of human health. The Canadian Food Inspection Agency monitors and enforces MRLs on food commodities.

## How is an MRL determined?

Field trials are conducted to measure residues on the edible portion of commodities at harvest. To ensure that the MRL is high enough to capture variations in soils, climate conditions and timing of applications, the PMRA has established the number and locations of field trials needed to support a domestic registration on specific crops; refer to Regulatory Directive DIR98-02, *Residue Chemistry Guidelines*, for more details. The *NAFTA Guidance Document on Data Requirements for Tolerances on Imported Commodities in the United States and Canada* provides information on data requirements that meet the NAFTA standards for the establishment of pesticide import tolerances and MRLs in the United States and Canada. A common NAFTA approach to import tolerances/MRLs will promote trade between North America and the rest of the world.

Because an MRL is the maximum residue expected to be left in/on a food at harvest, it is directly linked to any residues that may be ingested in the diet. An MRL is established only after a dietary risk assessment has confirmed that any pesticide residues likely to remain in/on the food when it is eaten will not pose an unacceptable risk, taking into account the effects of storage, processing, etc. After reviewing extensive toxicological studies, the PMRA calculates an acceptable daily intake (ADI) and/or acute reference dose (ARfD) by applying a safety factor to a "no observed adverse effect level" or, in appropriate cases, by applying a risk factor that is calculated based on a linear low-dose extrapolation. The potential daily intake (PDI) is calculated from the amount of residue that remains in/on each food when the pest control product is used according to the proposed label directions and the intake of that food from both domestic and imported sources in the diet. PDIs are established for various Canadian subpopulations and age groups, including infants, toddlers, children, adolescents and adults. Provided the PDI does not exceed the ADI or ARfD for any subpopulation or age group and the lifetime risk is acceptable, the expected residue

levels are established as MRLs to prevent the sale or import of food with higher residue levels. As, in most cases, the PDI is well below the ADI and lifetime risks are very low when MRLs are originally established, additional MRLs for a pesticide can be established for new uses if the need arises.

Regulatory decisions made by the PMRA are based on internationally recognized risk management principles, which are largely harmonized among member countries of the Organisation for Economic Co-operation and Development. Individual evaluations conducted by the PMRA include a review of the assessments conducted at the international level as part of the Joint Food and Agriculture Organization of the United Nations/World Health Organization Food Standards Programme in support of the Codex Alimentarius Commission, as well as MRLs adopted by other national health/regulatory authorities.